

# NOTES ON THE POSSIBLE MIGRATION AND THE NESTING OF THE BLACK VULTURE IN CENTRAL AMERICA

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## MIGRATION

FROM 3 August to 9 December 1964 I resided near Escazú, a few miles southwest of San José, Costa Rica. To the south of the nearly level open fields that surrounded our cottage rose the high summits of the Cerros de Escazú. From the central mass of this range a steep ridge stretches for several miles toward the northwest, gradually descending until it merges with the relatively level central plateau, which separates these mountains from the higher volcanic summits of the Cordillera Central, clearly visible in the north.

Along this ridge flocks of Black Vultures (*Coragyps atratus*) passed southward, on almost every clear morning that I looked for them, from 8 September (if not earlier) until our departure in early December. The vanguard of the travelers would appear around 08:00, when the sun had risen high enough to send its rays strongly against the eastern face of the ridge, which is largely covered by steep, close-cropped, hillside pastures, creating rising currents of heated air. Usually I first noticed the vultures as they circled on widespread wings above the sunny slopes, permitting the thermal updrafts to lift them higher. They flapped only sparingly, when ascending currents failed to sustain them, or to reach a point where they saw their companions rising more rapidly. After they had gained sufficient altitude, they would set their wings and glide off in a direction between south and southeast, following the line of the ridge, and always staying above its sunward face. After a while they would stop their forward drift to circle again, well below the summits of the range, which loomed ever higher above them as they followed it toward its loftiest peaks. Thus, with alternate circling ascents and forward glides, they reached the crest of the ridge at a point where it rose about 2,000 feet above the plateau. They could hardly be seen, except through field glasses, as they crossed the high skyline and sailed away into the blue in the direction of distant Panama.

These Black Vultures traveled in loose flocks that usually contained from 25 to 50 individuals. On some sunny mornings, flock after flock traced the same course, continuing until 09:00 or 10:00, and exceptionally later. Thus on 23 November, when in the forenoon a strong easterly wind blew great masses of clouds through the mountain passes to the east and north of the central plateau and there was little sunshine, I noticed the greatest movement of the vultures between 13:15 and 13:30, when con-

ditions for traveling seemed to become more favorable. Hundreds, if not thousands, of vultures passed on a single morning, and many thousands during the 3 months or more that the movement continued.

On 14 November, following a narrow lane between pastures and cornfields, I walked far out on the plateau toward the north. The sun shone brilliantly and a breeze blew from the east. Over the open fields I watched wave after wave of Black Vultures drift across the central plateau from the northeast, suggesting that they had entered it through the gap in the Cordillera Central between Volcán Irazú and the Barba massif. Each flock consisted of about 50 or more birds. From time to time, they circled in a local updraft to gain altitude, then continued over the level fields until they reached the northern foot of the descending spur. Here they changed their course by about 90 degrees, from southwest to southeast, to follow along the sunward face of the ridge as I had seen so many of their predecessors do. Evidently these vultures followed a traditional route. Local residents told me that the "zopilotes" pass this way every year.

These Black Vultures traveled alone. Only rarely did I notice a bird of another kind, a hawk too distant for identification, that seemed to accompany them. Although morning after morning I watched the bulk of the flocks vanish over the distant crest of the range, occasionally a few vultures detached themselves from the main body and turned back. These returning vultures circled on updrafts until they gained a great altitude, then, often from three to five together, they glided almost directly north or northeast until they dwindled to invisibility high above the central plateau. To have come so far only to turn back seemed pointless behavior, difficult to explain. Possibly the returning vultures were local residents that had joined the travelers in expectation of finding food or from some other motive, and dropped out when they reached the limits of their home range. For every individual that returned northward, hundreds passed over the mountain crests in the south. I found the population of apparently resident Black Vultures in the vicinity of San José surprisingly thin and was told that cattle-raisers and dairymen had been killing them because they attack sick cattle and newborn calves.

On darkly clouded and rainy mornings, I usually failed to see the vultures pass, but on the cloudy forenoon of 22 November, wave after wave of vultures drifted southward from 07:45 until nearly midday. By the last week in November, the daily stream of vultures had become thin, and I surmised that the movement was ending. Yet on 8 December, the last day of observation, the birds passed almost continuously until after the middle of the sunny morning.

These flocks of Black Vultures were, to all appearances, engaged in a long-distance migration. The route they took would, if followed long

enough, bring them to Panama and eventually to South America. On the Pacific coast of central Panama in November 1962, Eisenmann (Wilson Bull., 75: 244, 1963) watched Black Vultures moving eastward (toward South America), often accompanied by a few migratory hawks. The flocks that he saw, usually containing 50 vultures or less, were of about the size of those that I watched in Costa Rica. Although the Black Vulture is generally considered to be resident over most of its vast range, Eisenmann, after a review of the pertinent literature, discusses the possibility that it is partly migratory. He suggests that in this species, as in a number of other nonpasserines, it is the younger individuals that migrate, while breeding adults are more sedentary. The failure of Wetmore (Smithsonian Misc. Coll., 150: 161, 1965) to observe any comparable eastward movement of Black Vultures on the isthmus of Panama may be due to the fact that he worked there chiefly at other times of year.

The chief obstacle to accepting the conclusion that the Black Vulture is partly migratory is the apparent absence of observations on similar movements toward the north, for true migration in birds always involves a round trip. I have never myself seen any comparable passage of Black Vultures in a direction that would take them to the more northerly parts of their range; but when I recall that I spent over 30 years in Central America before I witnessed any sustained southward movement, I do not regard this negative evidence as weighty. I find among my notes, however, mention of certain flights of Black Vultures that may have been migration on a far smaller scale. On the morning of 7 April 1958 I saw a flock of about a dozen Black Vultures traveling northwest over our farm in El General, Costa Rica. In the middle of the following morning, I watched 14 of these birds spiralling up into the air. Presently they were joined by two more which circled with them. When the group had gained a good height, 13 of the birds set their wings and glided off to the northwest, while 3 sailed away in the opposite direction. A quarter of an hour later, seven more Black Vultures passed overhead, also toward the northwest. Again at about 08:30 on 14 April of the same year, a group of seven vultures soared up high into the sky and glided off to the northwest. The behavior of these birds was so similar to that of the Broad-winged Hawks (*Buteo platypterus*), which year after year at this season I watch circle upward in the morning sunshine and glide away to the west or northwest, that at the time I surmised that these Black Vultures were migrating to higher latitudes.

As, with my observations added to those of Eisenmann, the evidence for a mass movement of Black Vultures in a general southerly direction in autumn grows stronger, it is desirable that birdwatchers favorably situated keep a sharp watch for a migration in the reverse direction. Such a move-

ment need not follow the same route as the southward journey. In March and April of most years, here in El General, I see great flocks of Swainson's Hawks (*Buteo swainsoni*) streaming across the sky on their way to western United States; but only once have I seen a few traveling in the opposite direction in autumn. The southward migrants seem to stay almost wholly on the Caribbean side of the country (Skutch, Northwest Sci. 19: 80, 1945).

#### NESTING

Because information on the breeding of the Black Vulture in Central America is scant, it seems useful to give here what I have learned about it. This is very little because, in spite of the abundance and boldness of this scavenger about towns and villages and cattle farms, when nesting it is shy and secretive. The first nest that I saw was in the foothills of the Sierra de Merendón, at the edge of the Motagua Valley opposite Quiriguá, Guatemala. Here a boy showed me a nestling that he had found while gathering firewood in a scrubby hilltop pasture. The young vulture rested alone in a bare space, about a foot across, between projecting roots at the base of a large dead tree. Possibly a week or two old, the nestling was clothed in buffy down, except on its head and foreneck, where the black skin was mostly naked. The young vulture protested my intrusion with hissing and growling—needless defiance, as the disgusting odor that emanated from its unclean lair stifled all desire to touch it.

I first saw this downy young vulture on 23 March 1932. By 16 May its black remiges had become long and conspicuous, but its body was still covered with dense, buffy down. It did not always stay in the same spot, but had worn well-defined paths, up to 25 feet long, through the tall grass that surrounded the nest site at the base of the trunk. When I approached, it would hide beneath some dense bushes to which one of these trails led. When cornered in this retreat, it would hiss, growl, and strike with its bill. By 31 May black contour feathers were replacing the buffy down, giving it a mottled appearance. By 7 June the young vulture had vanished, probably having flown away. I marvelled that this bird, so vulnerable on the ground at the edge of the wilderness, should have escaped predation for well over two months. What, save its (to me) nauseating odor could have saved it from prowling mammals and snakes?

My second nest was in a very different situation. The tongue of land separating the Ríos Chirripó and Buena Vista, just above their confluence to form the Río General in southern Costa Rica, is broken and rocky, and at the time this nest was found it was covered with light, vine-entangled woods and impenetrable bushy growth. Here on 30 January 1937 a small boy showed me two nestlings beneath a huge rock whose flat lower face

was tilted up from the ground, leaving beneath it a bare, dry, level area about 12 feet long by half as wide. This space beneath the rock was only 20 inches high at the outer edge. The downy nestlings, which seemed to be only a few days old, stood huddled together so far in that we could not reach them. At intervals they shivered as though cold, although the sunny morning was becoming warm. Beneath them were enough fragments of dead plants to suggest a rudimentary nest, and parts of the empty eggshells lay close by. A slight odor of carrion came from beneath the rock, but the "nest" and its surroundings were quite clean. By 14 March these young vultures had vanished, although they were still not old enough to have flown.

The third nest was beneath the receding face of a huge rock on a steep hillside, not far from the site of the second. The rock had been surrounded by a low, scarcely penetrable growth of rank herbs and bushes, and the nest was not discovered until this vegetation was cut down to prepare a milpa. On 20 March 1937 it sheltered two half-grown young, whose black feathers were beginning to show through their abundant isabelline down. On the bare ground beneath the overhang, they rested on the whole tarsus, their heads drooping forward, and they protested with loud grunts and hisses when touched.

Black Vultures are most unspirited parents. One would expect birds so large and aggressive to show more concern when their young appear to be endangered, perhaps even to make some attempt to defend them. Although I visited the nest in the pasture in Guatemala a number of times, I only once found a parent present. It had just fed the young bird, and as I approached it rose to perch high in a tree, where, without making any sound or demonstration, it watched me touch its offspring with a foot.

After we had examined the nestlings beneath the rock at the confluence of the rivers, we sat screened by trees to await the arrival of their parents. Soon a Black Vulture soared into view and swooped directly down to the rock that sheltered its young. Promptly noticing the spectators only 10 feet away, it stood motionless for several minutes. Then it flapped up into the air, soared around, and alighted in a dead tree to watch. Soon the other parent flew down to rest on a platform of vines that grew over a shrub close in front of us. After less hesitation than the first had shown, it rose to join its mate in the dead tree. Both gazed down in stolid unconcern when we again approached their nest.

All three nests were found in the drier part of the year, which seems to be the season most favorable for breeding by ground-nesting birds. Eisenmann (op. cit., p 247) mentions two nearly fledged young found in a cave at Portobelo, Panama, on 9 February 1957. The eggs from which

these young vultures hatched were probably laid in November, a very wet month in Panama.

Wetmore (op. cit., p. 160) was told that nesting began on Isla Coiba, Panama, in mid-January, and he found half-grown young on 20 March. He mentioned nests in a hollow log, a hole in a tree base, under low matted vegetation in an abandoned field, and, in hilly country, in cavities among rocks. Two eggs are normally laid in Panama.

#### SUMMARY

From early September to early December, Black Vultures traveled in a generally southerly direction along a ridge that projects into the central plateau of Costa Rica from the mountains at its southern edge. The vultures passed chiefly on sunny mornings, when they could take advantage of thermal updrafts on the eastward-facing slopes; they went in successive waves or loose flocks that usually consisted of from 25 to 50 birds. Many thousands passed in the direction of Panama and South America during the 3-month period, and the movement was in full force when observations ended on 8 December. These observations provide evidence, additional to that already published by Eisenmann, that the Black Vulture is partly migratory. However no northward passage of comparable magnitude seems ever to have been witnessed.

A nest was found at the foot of a large tree in a scrubby pasture in Guatemala, and two beneath huge rocks in the valley of El General in Costa Rica. The first contained one nestling and each of the others two. These nests, and others reported from Panama, indicate that in Central America the Black Vulture breeds chiefly in the drier months early in the year.

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